Listing of Claims

1-21. (Cancelled)

22. (New) An aircraft landing gear assembly for an aircraft, comprising:

a nose gear and a main landing gear, the main landing gear comprising:

a nonrotational base portion configured to connect to an airframe of the aircraft;

a wheel connected to and rotatable with respect to the base portion about a rotational axis;

a plurality of stators connected to the base portion, wherein each of said plurality of stators comprises a disk having a plane that is substantially perpendicular to said rotational axis;

a plurality of rotors connected to the wheel and configured to rotate with respect to said stators, each of said plurality of rotors comprising a disk having a plane that is substantially perpendicular to said rotational axis;

wherein each of said pluralities of stators and rotors is configured to generate an axial magnetic flux substantially parallel to said rotational axis; and

wherein said pluralities of stators and rotors are configured so that interaction of their axial magnetic fluxes causes at least one of: converting electrical energy to rotational torque energy of the wheel, and converting rotational torque energy of the wheel to electrical energy.

23. (New) The aircraft landing gear assembly in accordance with claim 22, further comprising friction-type brakes connected to the base portion and configured to brake the wheel relative to the base portion in a blended braking system wherein magnetic braking is blended with conventional friction-type disk brakes.

24. (New) The aircraft landing gear assembly in accordance with claim 22, wherein said pluralities of stators and rotors are configured so that interaction of their axial magnetic fluxes causes: converting electrical energy to rotational torque energy of the wheel, and converting rotational torque energy of the wheel to electrical energy.

25. (New) The aircraft landing gear assembly in accordance with claim 22, wherein said pluralities of stators and rotors comprise conducting wire within carbon material configured so that interaction of their axial magnetic fluxes causes: converting electrical energy to rotational torque energy of the wheel, and converting rotational torque energy of the wheel to electrical energy.

26. (New) The aircraft landing gear assembly in accordance with claim 25, wherein said conducting wire comprises a high temperature superconducting wire.

27. (New) The aircraft landing gear assembly in accordance with claim 1, wherein said plurality of stators comprise high energy density permanent magnets within carbon material and said plurality of rotors comprise conducting wire within carbon material configured so that interaction of their axial magnetic fluxes causes: converting electrical energy to rotational torque energy of the wheel, and converting rotational torque energy of the wheel to electrical energy.

28. (New) The aircraft landing gear assembly in accordance with claim 27, wherein said conducting wire comprises a high temperature superconducting wire.

29. (New) The aircraft landing gear assembly in accordance with claim 22, wherein said pluralities of stators and rotors are configured so that interaction of their axial magnetic fluxes causes converting substantially all of the wheel's rotational energy into electrical energy and then into heat energy by the formation of eddy currents in at least one of said pluralities of stators and rotors.

30. (New) The aircraft landing gear assembly in accordance with claim 22, wherein said plurality of rotors comprise high energy density permanent magnets within carbon material and said plurality of stators comprise steel, configured so that magnetic fluxes of the permanent magnets cause eddy currents to be generated within a stator cause a magnetic drag torque energy to be generated within the wheel to dissipate the rotational energy of the wheel.

31. (New) The aircraft landing gear assembly in accordance with claim 30, wherein the plurality of rotors comprise conducting wire and the plurality of stators comprise a solid conducting material conducive to generation of eddy currents when power is applied to said wire.

32. (New) The aircraft landing gear assembly in accordance with claim 30, wherein the plurality of stators comprise conducting wire and the plurality of rotors comprise a solid conducting material conducive to generation of eddy currents when power is applied to said wire.

33. (New) The aircraft landing gear assembly in accordance with claim 22, wherein the aircraft landing gear comprises two wheels connected to and independently rotatable with respect to the base portion about the axis, wherein each of the two wheels is associated with a portion of the plurality of stators and a portion of the plurality of rotors.

34. (New) The aircraft landing gear assembly in accordance with claim 22, wherein at least one of said plurality of stators comprises electrically conductive wires and is configured to generate a first magnetic flux substantially parallel to said axis when current passes through said wires, wherein at least one of said plurality of rotors comprises a permanent magnet configured to generate a second magnetic flux substantially parallel to said axis, and wherein the landing

gear is configured to cause the wheel to rotate when said current passes through said wires by a magnetic torque interaction of the first and second magnetic fluxes.

35. (New) The aircraft landing gear assembly in accordance with claim 22, wherein each of said plurality of stators comprises electrically conductive wires and is configured to generate a first magnetic flux substantially parallel to said axis when current passes through said wires, wherein each of said plurality of rotors comprises a permanent magnet configured to generate a second magnetic flux substantially parallel to said axis, and wherein the landing gear is configured to cause the wheel to rotate when said current passes through said wires by a magnetic torque interaction of the first and second magnetic fluxes.

36. (New) The aircraft landing gear assembly in accordance with claim 22, wherein at least one of said plurality of rotors comprises electrically conductive wires and is configured to generate a first magnetic flux substantially parallel to said axis when current passes through said wires, wherein at least one of said plurality of stators comprises a permanent magnet configured to generate a second magnetic flux substantially parallel to said rotational axis, and wherein the landing gear is configured to cause the wheel to rotate when said current passes through said wires by a magnetic torque interaction of the first and second magnetic fluxes.

37. (New) The aircraft landing gear assembly in accordance with claim 22, wherein each of said plurality of rotors comprises electrically conductive wires and is configured to generate a first magnetic flux substantially parallel to said axis when current passes through said wires, wherein each of said plurality of rotors comprises a permanent magnet configured to generate a second magnetic flux substantially parallel to said axis, and wherein the landing gear is configured to cause the wheel to rotate when said current passes through said wires by a magnetic torque interaction of the first and second magnetic fluxes.

38. (New) The aircraft landing gear assembly in accordance with claim 22, wherein said plurality of stators and said plurality of rotors are configured in a plurality of stator-rotor sets, each set comprising at least one stator and at least one rotor.

39. (New) The aircraft landing gear assembly in accordance with claim 38, wherein, in each of said stator-rotor sets, at least one of said at least one stator and at least one rotor comprises electrically conductive wires configured to generate a magnetic flux substantially parallel to said axis when current passes through said wires, wherein each of said stator-rotor sets is independently operable as at least one of a motor and a generator depending on a voltage applied across said wires.

40. (New) The aircraft landing gear assembly in accordance with claim 39, further comprising:

a processor connected to said stator-rotor sets; and

an electrical device comprising at least one of an electrical energy storage device and an electrical energy dissipation device,

wherein the processor is configured to connect and disconnect the stator-rotor sets to and from each other and to and from the electrical device.

41. (New) The aircraft landing gear assembly in accordance with claim 40, wherein the electrical device comprises a battery.

42. (New) The aircraft landing gear assembly in accordance with claim 40, wherein the electrical device comprises a capacitor.